

REMARKS

The Office Action of June 21, 2011, and the references cited therein, have been received and carefully considered.

Claims 1, 6 and 9 have now been amended to make clear that both radio channels used by the repeater, acting between the portable station and the network, are half duplex radio channels.

Claims 1-3 and 5-9 have been rejected as obvious over Dinkins in view of Lee et al. and further in view of Mulford.

The Applicant respectfully submits that a combination of the cited references would not result in the applicant's invention, because the prior art references do not disclose or suggest a mobile repeater which uses two half duplex radio channels in the manner defined in the claims.

The presently claimed invention enables a conventional mobile radio (mounted in a vehicle) to be programmed as a repeater between a portable radio (carried by a user) and the network. The duplex (two way) channel of the conventional radio is split into two half duplex channels, one of which is used for communication between the portable and the mobile, the other being used between the mobile and the network. This arrangement avoids the need for additional hardware and additional expense. Existing mobile repeaters typically employ two duplex radios, side-by-side, to provide this

function. They are therefore more expensive, and may be unsuitable for low cost networks, as described in paragraph [0004] of the specification. In particular, existing repeaters are unnecessarily complex and expensive for forwarding emergency messages from the portable to a central station in the network.

Dinkins and Mulford both disclose examples of costly radio systems, which could possibly be replaced by the Applicant's invention in some circumstances.

Lee et al. is an example of a local computer network, in an office environment, for example, which uses infra-red channels between units. These require line-of-sight between the units, and would never have been considered by a radio engineer involved in development of a wide area radio network.

Mulford discloses a voice repeater system with full duplex channels between mobile repeater 104 and portable 105, and between the repeater and the network units 101, 103 (Fig.1). The repeater uses full duplex channel (F1, F2) for communication with the portable, and a full duplex channel (F2, F3) for communication with the network. This is a relatively expensive general purpose system and there is no suggestion that half duplex channels could be used as an alternative. The invention is primarily about automatic activation of the repeater, rather than reducing the cost of

the repeater equipment.

Dinkins discloses a store-and-forward repeater 22 which sends messages in one direction only, from the base station 10 to the terminal 12 (Fig. 2). The Patent Office mistakenly discusses this part of the system in detail, as if messages could be sent in both directions. An entirely separate path is taken by messages sent from the terminal to the network, involving a receiver 16. The terminal 12, the repeater 22, and the receiver 16 are all fixed items of equipment, which is an entirely different arrangement to portable radios and vehicle mounted radios in a radio network. It is not stated whether the channels are full duplex or half duplex, because details of this kind are not relevant.

Dinkins relates primarily to data gathering by "telematics", as described in US Patent No. 5,388,101. The Dinkins reference (US 5,633,876) attempts to improve on the earlier system by adding the fixed repeater 22, to what is effectively an existing fixed repeater 16. An arrangement of this kind would be entirely inefficient in the context of the present invention. The repeaters 16 and 22 are dedicated items of equipment. A radio engineer developing the present invention, from an existing vehicle mounted radio, would dismiss Dinkins and Lee et al. as irrelevant.

It is clear that the Mulford, Dinkins, and Lee et al.

references teach in different directions. Mulford involves relatively expensive general purpose repeater equipment, but at least relates to a radio network of the same general kind as the present invention. Dinkins is considering an existing telematics system involving fixed dedicated equipment for data gathering. Lee describes a computer network using IR signals and requiring line-of-sight between the units. It is thus not conceivable that a person of ordinary skill in the art would combine these systems in the way suggested by the Patent Office.

Accordingly, the rejection of claims 1-3 and 5-9 as obvious over Dinkins in view of Lee et al. and further in view of Mulford should be favorably reconsidered and withdrawn.

Applicant submits that the present application is now in condition for allowance and early notice of such action is earnestly solicited. If any final points remain that can be clarified by telephone, Examiner Baron is respectfully encouraged to contact Applicant's attorney at the number indicated below.

Respectfully submitted



Date: September 21, 2011

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